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Abstract. This article analyses discourses on climate change and mitigation through the deconstruction of European Union (EU) rhetoric and practices on climate benchmarking. It critically examines the motivations behind climate benchmarking, the methods used to construct international benchmarks, and the reasons for variety in domestic compliance. Germany and the United Kingdom are analysed as cases where domestic politics drive very different reactions to the practice of climate mitigation, differences that have been largely hidden by the type of quantification that EU benchmarking involves. Through an exploration of the methods used to formulate climate benchmarks, the article demonstrates that these commitments have privileged certain responses over others, and thus helped to paint a picture of EU benchmarks as 'reformist' but not 'radical'. EU climate benchmarks often end up concealing more than they reveal, making it difficult to fully engage with the scale and complexity of the far-reaching domestic changes that are required in order to comply with agreed international benchmarks. The deficiencies of benchmarks as a mechanism for driving long-term sustainable change, and importantly discouraging harmful policies, may ultimately undermine their credibility as a means for governing climate change at a distance in the EU.

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Introduction

For at least thirty years some international organisations (IOs), governments, and non-governmental organisations (NGOs) have worked hard to establish and diffuse new global norms in order to mitigate for anthropogenic climate change. A variety of speeches and texts associated with these organisations reveal arguments about the severity of implications for humankind if climate change is not mitigated, but arguably less understanding of the scale of the task that is being set nor of the degree to which fossil fuels are embedded within current economic models and political relations. Amongst international organisations some degree of agreement about how to proceed has been reached. There are a number of binding international climate targets including those agreed within the United Nations Framework on Climate Change Convention (UNFCCC) and the EU 20-20-20 agreement. There has been a proliferation of new climate agencies, committees, and international instruments,

including benchmarks, tasked with delivering these targets. The EU is taken here as an important actor, some say a leader, within such governance processes of trying to mitigate for climate change within severe temporal constraints. In this way their successes and failures are considered important in setting precedence of possibility but also because governance methods chosen and endorsed here may be followed elsewhere.

This article peers beneath these, at least rhetorically, committed climate discourses by exploring EU climate change benchmarking practices. Benchmarks are understood here as one important method utilised within the process of establishing new international climate norms and driving associated sustainable policy and behaviour changes. Climate benchmarks are the point of reference against which individual country's climate performance may be compared or assessed – climate targets agreed internationally, or in this case regionally, are used as the standard of measurement. There are those that have argued that climate mitigation targets should be too important for or above politics, often understood in terms of conflict, whilst others claim that politics gets in the way of successful climate mitigation and sustainable energy transitions.[1] In that benchmarks reflect decisions made and targets set as a result of political agreement about what should be done it is understood that they should not be open to contestation. This article argues, by contrast, that benchmarks are themselves highly political in a number of different ways. Firstly in that they have been constructed partly based upon certain political ideas about how best to govern; secondly in that, in related fashion, they reward certain practices and behaviours whilst ignoring others; and thirdly in that compliance with benchmarks has wide ranging politico-economic implications for compliance countries even in the instance that those countries were involved in the design of climate benchmarks.

This Special Issue is based upon the notion that different areas of benchmarking, according to governance domain, need to be understood on their own terms as well as collectively. In paying close attention to the specific ideas and assumptions that qualify and colour climate benchmarks this article moves beyond claims that global governance practices, like benchmarks, embody mainly market liberal orthodoxies. In order to better understand the precise nature of climate change benchmarks, this article first of all explores the somewhat mixed range of motivations behind the establishment of climate governance. It then reveals the complex mix of ideas and assumptions that have become embedded within benchmarks in order to explain *why* it is that certain politico-economic practices are seen and rewarded and others ignored by benchmarks. The intention here is not to argue for or against benchmarks but to reveal more about compromises reached and how these have limited the design and scope of targets and benchmarks.

Having revealed some of the character of climate benchmarks the next section explores what this actually means in practice. The approach taken here intends not just to assess whether benchmarks influence practice but to claim that the ways in which climate benchmarks have been designed are significant for domestic policy and politics but also, ultimately, for the legitimacy of climate governance. The method chosen here of making such assessments, and relating constructions to practices, is to study compliance at the domestic level in Germany and the UK, two developed and ostensibly climate aware countries. These countries are chosen partly because they

[1] Robert Garner, *Environmental Politics: the Age of Climate Change* (Basingstoke and New York: Palgrave Macmillan, 2011).

claim leadership in mitigation but also because they both score well and at similar levels in official EU benchmarking indexes – as such they are often held up as countries that pursue 'best practice' in climate governance.[2] Indeed, some climate indexes place the UK ahead of Germany, for example the high profile Climate Change Performance Index (CCPI) ranks the UK second only to Denmark whilst Germany languishes at number 19 (see Box 1).[3] This benchmarking position appears puzzling in the light of qualitative studies of climate policy and practices that rate Germany ahead of the UK.[4] By considering how climate benchmarks are constructed and how this inter-relates with compliance this article offers some explanation as to why such anomalies exist.

Global climate governance and embedded ideas

The approach to benchmarking taken here sits within broader constructivist IPE approaches to international governance and organisations (IOs), in that it explores how benchmarks are constructed rather than taking them as given.[5] Benchmarks are conceptualised here as embedded within but also as performing vital functions, of comparison and compliance, within processes of governing internationally. In this case climate benchmarks sit within governance attempts to set new and sustainable behavioural norms internationally. Benchmarks are further conceptualised as constructed objectivity, as reflecting existing knowledge, as power relations, and as weaving together the discursive and material worlds.[6] This latter is achieved through establishing quantitative benchmarking standards, often universally defined, and then encouraging compliance with those standards through measurement, comparison and, in some instances, naming and shaming.[7] Benchmarks as practice can have the ability to constitute a new common sense that narrows governance options down and normalises certain norms.[8] Arguably, however, in order for such processes to be successful there needs to be a degree of at least perceived legitimacy associated both with set benchmark standards and those actors that have set the standards.

[2] European Environment Agency (EEA), 'Report No. 10/2013: Trends and Projections in Europe 2013: Tracking Progress Towards Europe's Climate and Energy Targets Until 2020' (Copenhagen: European Environment Agency, 2013). See also International Energy Agency World Energy Outlook, 'Special Report 2013: Redrawing the Energy Climate Map' (Paris: International Energy Agency, 2013).

[3] J. Burck, F. Marten and C. Bals, *The Climate Change Performance Index: Results 2014* (Brussels: Climate Action Network Europe, 2014).

[4] See, for example, J. Mikler and N. Harrison, 'Varieties of capitalism and technological innovation for climate change mitigation', *New Political Economy*, 17:2 (2012), pp. 179–208; D. Toke and V. Laubner, 'Anglo-Saxon and German approaches to neoliberalism and environmental policy: the case of financing renewable energy', *Geoforum*, 38 (2007), pp. 677–87; J. Rosenow, N. Eyre, C. Rhode, and V. Buerger, 'Overcoming the upfront investment barrier – comparison of the German CO2 building rehabilitation programme and the British Green Deal', *Energy and Environment*, 24:1/3 (2012), pp. 127–36; C. Mitchell, D. Bauknecht, and P. M. Connor, 'Effectiveness through risk reduction: a comparison of the renewable obligation in England and Wales and the feed-in system in Germany', *Energy Policy*, 34 (2006), pp. 297–305.

[5] A. Broome and L. Seabrooke, 'Seeing like an international organisation', *New Political Economy*, 71:1 (2012), pp. 1–16; A. Broome, 'Constructivism in international political economy', in R. Palan (ed.), *Global Political Economy: Contemporary Theories* (London and New York: Routledge, 2013); H. K. Hansen and A. Mühlen-Schulte, 'The power of numbers in global governance', *Journal of International Relations and Development*, 15 (2012), pp. 455–65.

[6] A. Broome and J. Quirk, 'Governing the world at a distance: the practice of global benchmarking', *Review of International Studies*, 41:5 (2015), pp. 819–41.

[7] Ibid.

[8] L. Seabrooke, 'Pragmatic numbers: the IMF, financial reform, and policy learning in least likely environments', *Journal of International Relations and Development*, 15 (2012), p. 489.

As already observed elsewhere, however, there are differences between IOs – even between those operating within single policy areas.[9] A variety of modus operand, objectives and internal policy debates have been observed, as well as claims made that there is more than one Washington Consensus. Starting out from this position, this Special Issue as a whole disaggregates benchmarks by analysing practices separated out according to different transnational policy domains. A further method of disaggregating between benchmarks – suggested in the opening article of this Special Issue – is to group benchmarks according to typologies based on actors, who does the benchmarking, and the purpose or type of international practice that benchmarks are being used to actuate. Within this typology, the CPPI has been described as sitting within 'type IV' – conceptualised as being either explicitly or implicitly geared towards transnational advocacy in particular issue areas and used by a civil society organisation. There is certainly some merit in this description – climate benchmarks are indeed used as part of an overt attempt to make the world a better place by measuring countries against internationally agreed targets.

However climate benchmarks, in that they are so widely used by IOs to measure climate performance, also sit within 'type II' or 'benchmarking as international governance' and are less geared towards the promotion of individual state's national interests. It is therefore considered important to reveal here how benchmarks have been constructed, what practices at state level they reward and allow, and what implications this has in practice.[10] Given the degree to which benchmarks are used to establish and measure progress towards new norms by IOs and civil society it is important, for the success and legitimacy of climate governance, to assess whether benchmarks do, indeed, encourage behaviours consistent with mitigation and falling CO2 levels. This is achieved here through disaggregating benchmarks in another way – by revealing and unpacking the knowledge structures that underpin them through an interrogation of EU climate governance norms.

This approach is based on the assumption that ideas are key variables capable of influencing governance choices – both at the domestic and international level – and that by being specific about ideas we can be more overt about *what* existing knowledge benchmarks are based on.[11] The emphasis here is on ideas as influential within processes of establishing new areas of governance given that climate benchmarks, and the targets upon which they are set, are part of the process of establishing new climate norms and of driving new and sustainable behaviours. Sociological institutionalists suggest that ideas play multiple roles during periods of, often domestic, policy change: alternative ideas can challenge existing orthodoxies by identifying weaknesses and problems and by suggesting alternative solutions to problems. But, importantly, embedded orthodoxies can also constrain and colour what types of new objectives and policy instruments are ultimately agreed and pursued.[12] By identifying these multiple roles for ideas we can understand that new governance norms are established through the push and pull between competing, but

[9] Broome and Seabrooke, 'Seeing like an IO', p. 8.
[10] Broome and Quirk, 'Governing the world at a distance'.
[11] On ideas and institutions see J. L. Campbell, 'Institutional analysis and the role of ideas in political economy', *Theory and Society*, 27:3 (1998), pp. 377–409; S. Berman, *The Social Democratic Moment: Ideas and Politics in the Making of Interwar Europe* (Harvard: Harvard University Press, 1998); M. Blyth, *Great Transformations: Economic Ideas and Institutional Change in the Twentieth Century* (New York: Cambridge University Press, 2002); C. Hay, 'Narrating crisis: the discursive construction of the winter of discontent', *Sociology*, 30:2 (1996), pp. 253–77.
[12] Blyth, *Great Transformations*; Hay, 'Narrating crisis…'.

not always compatible, sets of ideas revealing a more nuanced understanding of what knowledge international governance is based upon.[13]

Taking ideas and knowledge as influential is a common approach utilised in both international governance literatures but usually to describe path-dependencies. The forms of knowledge enacted through international governance processes are often described as generic. Such descriptions are not surprising given claims by some IOs that they are arbiters of knowledge about 'world's best practices' and 'good governance' and claims that countries performing well according to benchmarks also represent 'best practice'.[14] Legitimacy of norms and rules are inferred in the titles of 'best' and 'good' and it is also implied that countries following such practices will succeed in meeting targets. Such claims have led scholars to conceptualise some IOs as defining and enforcing governance according to 'Washington Consensus' norms, underpinned by liberal economic ideas about the role of the state in economic governance, economic efficiency, and fiscal responsibility.

Such claims are also common within some constructivist and IPE climate governance literatures – indeed it has been claimed that in order to gain acceptance internationally for climate action environmental concerns have been absorbed into the prevailing liberal economic order and associated power relations.[15] In this vein liberal economic ideas have been presented as erecting intellectual boundaries around the scope of policy imagination available to IOs in their everyday activities but also, importantly, around the design of benchmarks that seek to impact upon policy at the national level.[16] There is a small point of departure here in that climate governance is conceptualised as being informed by varied sets of ideas simultaneously, more in line with observations above about change taking place as a result of the push and pull between different sets of ideas. Climate governance is taken here not just as a case of decision-making during a process of change as bounded by one framework of ideas but as a coming together of different sets of ideas to motivate and inform the design of this emerging governance arena.[17] Multiple sets of ideas, environmental, scientific, and market liberal are embodied, enacted, and reified through climate benchmarks making this an emergent, highly political but complex area for analysis.

Such observations inform the methodology used here in that the article identifies and considers the influence of the different sets of ideas within processes of creating and utilising benchmarks at the international level. Environmental and scientific ideas are included to the extent that they have identified and outlined climate change as a problem that requires action thereby setting the new governance objective of reducing emissions.[18] Once accepted, however, this objective became coloured and constrained by orthodox knowledge within IOs about *how* to govern globally, that is, by setting targets, requiring countries to follow and assessing their progress using benchmarks. In a further stage ideas about the importance of economic growth to sustainability, about treating climate separately from environment, and about the need for energy

[13] C. Kuzemko, *The Energy Security Climate Nexus: Institutional Change in the UK and Beyond* (Basingstoke and New York, 2013), p. 180.
[14] Broome and Seabrooke, 'Seeing like an IO', p. 7.
[15] See, in particular, S. Bernstein, *The Compromise of Liberal Environmentalism* (New York: Columbia University Press 2001); but also H. Stevenson, 'India and international norms of climate governance: a constructivist analysis of normative congruence building', *Review of International Studies*, 37:3 (2011), pp. 997–1019 (p. 1001); and P. Newell, 'The elephant in the room: Capitalism and environmental change', *Global Environmental Change*, 21 (2011), pp. 4–6.
[16] Broome and Seabrooke, 'Seeing like an IO', p. 2.
[17] Kuzemko, *The Energy Security-Climate Nexus*, pp. 179–84.
[18] See also Stevenson, 'India and international norms of climate governance', p. 1001.

system transition are also shown to be embedded within climate norms. Understanding in more detail how ideas have structured benchmarks helps to reveal *what* practices are measured and encouraged at the international level as well as why. In many ways, however, this article suggests that what climate benchmarks do *not* see is as important as the behaviours that are encouraged.

In order to fully understand the practical significance of these constructions one further step is taken here by comparing processes of compliance with benchmarks in Germany and the UK. This is done in order to trace the substantive but variable effects of climate benchmarks *as constructed* – arguably a relative silence within existing benchmarking and climate governance literatures. Some climate governance scholars have suggested that the different domestic contexts and social, economic, and political processes involved in attempting to comply with climate benchmarks are consequential.[19] Rarely, however, is this claim explored in detail. It has also been claimed, within comparative climate scholarship, that different institutional arrangements have been better suited to building systems of sustainable change in response to climate targets.[20] Domestic ideas and institutions in this way colour how compliance takes place. What this article suggests is that such differences are not 'seen' by benchmarks because they are designed to simplify and quantify – the relative positions of Germany and the UK on EU climate benchmarks being a case in point. As such they are unable to recognise how domestic institutions affect a country's capacity and willingness to comply, or indeed the scale of political and energy system changes required. Furthermore, what activities are and are not measured by benchmarks becomes crucial to countries rankings and to which countries are held up as examples of good practice.

Benchmarks can and do, however, change and it is precisely for this reason that the politics of how compliance plays out in practice is important. IOs, governments, and NGOs have arguably been working from a far less established framework of ideas about what is right, what standards should be and how to measure them, given the somewhat unprecedented nature of climate mitigation as an area for governance. Climate agreements that have been reached, such as the EU's 20-20-20, have been hard won but are also are overtly subject to further renegotiation and potential fluidity as targets are all temporally fixed.[21] Much analysis of benchmarks assumes a one-way relationship inferring that policy is prior to compliance.[22] However, compliers with climate benchmarks are also important negotiators in setting new targets and this can be taken as one example of a 'recursive loop'.[23] In this way, how compliance happens, including resistances and contestations, really matters. International governance literatures, to the extent that they fail to consider these substantive and varied inter-relationships, stop short of fully realising the significance

[19] See also I. Bailey and H. Compston, 'Geography and the politics of climate policy', *Geography Compass*, 4:8 (2010), pp. 1097–14 (p. 1097); Garner, *Environmental Politics*, p. 5; P. Burnell, 'Democracy, democratization and climate change: Complex relationships', *Democratization*, 19:5 (2012), pp. 813–42 (pp. 815, 821).

[20] M. Lehtonen and F. Kern, 'Deliberative socio-technical transitions', in I. Scrase and G. MacKerron (eds), *Energy for the Future: A New Agenda* (Basingstoke: Palgrave Macmillan, 2009); Mikler and Harrison, 'Varieties of capitalism and technological innovation'; see also Garner, *Environmental Politics*, p. 4.

[21] In line with observations made by Stevenson, 'India and international norms of climate governance', p. 998.

[22] See O. J. Sending and J. H. Sande Lie, 'The limits of global authority: World Bank benchmarks in Ethiopia and Malawi', *Review of International Studies*, 41:5 (2015), pp. 993–1010.

[23] Broome and Quirk, 'Governing the world at a distance', p. 11.

of benchmarks for compliance countries but also interconnections between constructions, outcomes and further reconstructions of governance norms.

Climate governance and benchmarking as reformist

Global warming is one amongst a number of issues that have been raised and pursued by the international environmental movement, much of which has operated for many decades under a different philosophy to most other political perspectives.[24] Indeed, it is the environmental focus on inter-relationships between humans and nature that has helped us to conceive of climate change not as something inevitable but as an outcome of a range of human actions and as part of growing natural degradation. Such problems presented by humankind's actions have been conceptualised as global, given that as humans we live and operate in an interconnected fashion within the confines of the earth and its atmosphere – making global warming the ultimate global problem. What has further motivated a desire for global action is the emergence of a scientific consensus on anthropogenic climate change as well as lists of potential implications for humankind that have been associated with warming of above 2°C over preindustrial levels.[25] These notions have collectively come to form one of the bases of current international governance knowledge about climate change and the need for worldwide action.

It is important to note, however, that much environmental thought has also presented distinct normative challenges to global, as well as some domestic, governance orthodoxies. Environmental debates in the 1970s were informed by claims about natural limits to economic growth, whilst earlier literatures emphasised the links between capitalism, economic growth, fossil fuel use, and environmental degradation.[26] Indeed, models of growth since the industrial revolution have been based on ever-emergent new mechanisms and technologies that in turn were largely dependent on ever-greater energy use. From this perspective, modern capitalism is an integral part of the problem of climate change and solving it would for this reason require deep structural change – including a move away from common emphasis on economic growth.[27] This is what is referred to as a 'radical' environmental position.[28]

Despite growing degrees of élite political consensus around the notion that humankind is responsible for climate change and that action must be taken, the battle to establish an international climate framework was long and arduous and included many compromises from these original environmental and scientific debates.[29] Steven Bernstein explores in detail how environmental debates of the 1970s became imbued with existing power relations and liberal ideational orthodoxies emanating from

[24] Garner, *Environmental Politics*, ch. 1.
[25] IPCC (2007), in A. Giddens, *The Politics of Climate Change* (Cambridge and Malden, MA: Polity Press, 2009) p. 22; see also Stevenson, 'India and international norms of climate governance', pp. 997–8; Burnell, 'Democracy, democratization and climate change', p. 818. For example, one predication in Burnell's work is that global warming will result in 26 million 'climate displaced people' in the next twenty years.
[26] P. Newell and M. Paterson, *Climate Capitalism* (Cambridge: Cambridge University Press, 2010), pp. 12–13.
[27] J. Dryzek, D. Downes, C. Hunold, D. Schlosberg, and H. Hernes, *Green States and Social Movements: Environmentalism in the United States, United Kingdom, Germany and Norway* (Oxford: Oxford University Press, 2003).
[28] Garner, *Environmental Politics*, pp. 7–10
[29] Bernstein, *The Compromise of Liberal Environmentalism*, p. 32.

within international governance circles.[30] Global climate governance has through these processes been constructed through the co-option of only some environmental and climate science ideas whilst rejecting others. Indeed, amongst others it was those ideas that posed more of a challenge to Western liberal structures of growth and consumption that were sacrificed.[31] In these ways international climate governance, as currently structured, can be referred to as reflecting a 'reformist' position as it embeds the idea that it is possible to effectively incorporate climate protection within pre-existing political and economic structures of modern industrial society.[32] As explained in more detail below, from a radical position this approach is likely to result in failure to protect our environment and in governance measures that are too weak to make sufficient difference.

Through this compromised reformist approach international climate norms that have emerged, like other forms of international governance, are based upon setting international targets against which countries can be measured. Targets are understood here as specific, defined outcomes towards which (policy) efforts should be directed. It is assumed that the acceptance of legally binding targets will force change across a wide range of policy areas at the national level and ultimately produce changes in practices allowing for the rate of warming to slow and then be limited to 2°C.[33] Indeed, the notion that universal standards can and should drive other policy choices is deeply embedded within EU climate governance and the associated policy of mainstreaming. As EU Climate Commissioner, Connie Hedegaard, recently observed, '(c)limate solutions are all around – it's now on us to make them the norm'.[34]

In terms of specific targets, although new 2030 EU targets were agreed in October 2014, benchmarks have so far been based on the EU 20-20-20 package which includes a greenhouse gas (GHG) emissions reduction target of 20 per cent over 1990 levels. This emissions reduction commitment is above and beyond that of the Kyoto Protocol giving rise to claims that the EU is a leader in climate mitigation. However, the 20-20-20 package also includes other specific targets not included in Kyoto: to produce 20 per cent of EU energy consumption from renewable sources and to improve EU energy efficiency by 20 per cent both by 2020.[35] Here we can see the influence of ideas about inter-linkages between energy (as dominated by fossil fuels) and climate change – indeed these targets imply that energy systems must change in order to mitigate successfully.[36] These targets form the basis of various EU climate benchmarks, discussed in more detail below, and are accompanied by a range of preferred measures and instruments designed to enable countries to meet set targets

[30] Ibid.; See also P. Newell and M. Paterson, *Climate Capitalism: Global Warming and the Transformation of the Global Economy* (Cambridge: Cambridge University Press, 2010); Stevenson, 'India and international norms of climate governance', p. 999.

[31] H. Stevenson, 'Representing green radicalism: the limits of state-based representation in global climate governance', *Review of International Studies*, 40:1 (2014), p. 184.

[32] Garner, *Environmental Politics*, p. 8.

[33] M. Kneuer, 'Who is greener? Climate action and political regimes: Trade-offs for national and international actors', *Democratization*, 19:5 (2012), p. 865.

[34] Connie Hedegaard, *European Commission News* (2014), available at: {http://ec.europa.eu/commission_2010-2014/hedegaard/headlines/news/2013-12-20_01_en.htm} accessed 20 April 2015.

[35] New 2030 targets are: to reduce GHG emissions by at least 40 per cent below the 1990 level (binding at the EU level); to increase the share of renewables to at least 27 per cent (binding at the EU level); and to increase energy efficiency by at least 27 per cent (indicative only), available at: {http://ec.europa.eu/clima/policies/2030/index_en.htm} accessed 20 April 2015.

[36] It is estimated that up to 83 per cent of CO2 emissions in Annex 1 countries come from the energy sector – see IEA, *CO2 Emissions from Fuel Combustion: Highlights* (Paris: IEA, 2013).

such as the EU Emissions Trading Scheme (EU ETS) and the Energy Efficiency Directive.[37]

For some, given the emergence of scientific consensus on climate change and its causes, and associated studies about probable consequences, there should be no politics *of* climate change. Frustration is often expressed that possibilities already exist for climate mitigation to proceed but that politics, often defined separately and at the national level, actually stands in the way of achievements.[38] There are, furthermore, claims that climate change, given that it is so universal and important, should be taken out of 'partisan' political competition in order to give mitigation strategies the secure tenure needed in order to work.[39] This notion of climate change action being above politics coincides well with liberal institutionalist ideas about setting technical standards as 'objective' measures against which performance can be judged.[40] Climate action should, from these perspectives, be about technical transitions along measurable metrics towards lower emissions and a clean and sustainable future.[41] The approach taken in this article, however, denies the objectivity of climate targets and benchmarks but instead argues that their construction reflects politics, power relations, and complex and varied forms of knowledge about climate and energy.

Climate benchmarks and governance targets

There has been a proliferation of climate benchmarks over the past decade almost all of which are used for transnational advocacy purposes.[42] For example, the high profile CCPI, accumulated by Germanwatch, is used not only to assess and judge performance, against set standards, but also to enhance transparency and raise awareness of climate change via media channels and amongst political actors – with some naming and shaming also involved. Some attempt is made to highlight countries with best-practice policies – the inference being that less successful countries should follow their lead.[43] This makes it important that countries highlighted as 'good' are really on a long-term path to a more sustainable system. A large proportion of climate benchmarking is, however, undertaken by IOs. In fact all parties to EU, and Kyoto, agreements must be measured, as accurately as possible, against their commitments for the targets to have any practical effect.

EU climate benchmarks are highly quantitative and numbers oriented reflecting the targets upon which they are based – it requires a certain level of understanding of the science of climate change and of how different forms of energy function to comprehend them in any depth.[44] These benchmarks are put together annually to measure performance against GHG emissions reduction targets at the collective EU

[37] See DG Ener website, available at: {https://ec.europa.eu/energy/en/topics/energy-efficiency} accessed 20 April 2015.
[38] I. Bailey and H. Compston, 'Geography and the politics of climate change', *Geography Compass*, 4:8 (2010), pp. 1097–8.
[39] A. Giddens, *The Politics of Climate Change*, p. 189.
[40] See H. Compston and I. Bailey, 'Comparing Climate Policies: the Strong Climate Policy Index', Paper prepared for the PSA Annual Conference, Cardiff, March 2013.
[41] Garner, *Environmental Politics*, p. 6.
[42] See Broome and Quirk, 'Governing the world at a distance'.
[43] J. Burck, L. Hermwille, and C. Bals, 'The Climate Change Performance Index: Background and methodology', *Germanwatch* (November 2013), p. 4, available at: {https://germanwatch.org/en/download/8579.pdf} accessed 20 April 2014.
[44] See European Environment Agency, 'Trends and Projections in Europe: Tracking Progress Towards Europe's Climate and Energy Targets Until 2020', EEA Report No. 10/2013; Burck et al., *The Climate Change Performance Index*; Compston and Bailey, 'Comparing Climate Policies'.

level and against the individual targets that have been agreed for each member state. Aggregate EU, and individual country, renewable energy data is collected by a data collection agency, Eurostat, based within the European Commission.[45] These measures, along with efficiency data, are then combined in the annual European Environment Agency (EEA) report which serves as the principal EU climate benchmarking index. Interestingly when compiling benchmarks the EU often uses EEA data but they, in turn, rely heavily on information provided by member states.[46] The formal process of EU monitoring, reporting and verification (MRV) of GHG emissions takes place annually during the European Semester. Measuring against climate standards is, in addition, an emerging and inherently tricky business. With regard to measuring energy efficiency against targets different countries have varied criteria for assessing performance – not all of which are comparable.[47]

In these ways internationally agreed targets are central to climate governance but they also become the basis for climate benchmarks. In turn, benchmarks embody targets and become the principal method of measuring compliance success. Without measurement countries, and the EU, cannot be held accountable for missing targets. So intertwined are targets and benchmarks that in the language of EU climate governance binding targets are often referred to, in a quite inter-changeable manner, as benchmarks. The uneasy compromise between environmental ideas and liberal ideas about how to govern for global phenomena has so far resulted in an EU system designed to encourage behaviour change but using pre-existing governance methods.

EU climate benchmarks: What is seen and what is not

Technocratic, universal governance approaches have already attracted some criticism within climate change literatures.[48] This is partly because, like critiques of international governance practices in other policy domains, technical standards tend not to question the assumptions underlying them but also narrow down what human activity is seen.[49] This applies to EU benchmarks in that GHG emissions reduction, production of renewable energy, and improving efficiency have become what EU monitoring agents see and reward – but always with an important time lag and with little means of noting those countries that are working towards more progressive, long-term climate targets. Two other assumptions embedded in EU climate benchmarks, outlined below, further assist in delineating what is allowed but also what is not seen – assumptions that are shown here to both hide and actively approve behaviours that exacerbate climate change and environmental damage.

[45] DG Climate, 'Progress Towards the 2020 Targets: the European Semester' (2014) available at: {http://ec.europa.eu/clima/policies/g-gas/progress/index_en.htm} accessed 20 April 2015.

[46] European Environment Agency, 'Trends and Projections in Europe', p. 15; see also European Commission, 'Elements of the Union Greenhouse Gas Inventory System and the Quality Assurance and Control (QA/QC) Programme', Brussels 12 August 2013, SWD (2013) 308 final.

[47] J. Rosenow and R. Galvin, 'Evaluating the evaluations: Evidence from energy efficiency programmes in Germany and the UK', *Energy and Buildings*, 62 (2013), pp. 450–8

[48] V. Mathur, S. Afionis, J. Paavola, A. Dougill, and L. Stringer, 'Experiences of host communities with carbon market projects: Towards multi-level climate justice', *Climate Policy*, 14:1 (2014), pp. 42–62; P. Newell and A. Bumpus, 'The global political ecology of the clean development mechanism', *Global Environmental Politics*, 12:4 (2012), pp. 49–67.

[49] See J. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven, CT: Yale University Press, 1998), p. 76 in Broome and Seabrooke, 'Seeing like an IO', p. 7.

Economic growth is 'sustainable'

One important assumption built into climate benchmarks has to do with the accepted role of economic growth within Western capitalisms. Specifically, as part of the process of compromise discussed above, a decision was made to depart from the singular emphasis on environmental variables when defining what is sustainable to include economic growth as part of the definition.[50] This is evident within EU climate discourse to the extent that the framing of environmental issues rests on and includes a primary concern with economic growth.[51] The question of how climate change mitigation and economic growth relate to one another is by no means new in that it in many ways defines the split between climate reformists and radicals. Reformists and ecological modernisation theory suggest not only that economic growth is compatible with environmental protection but the two are, in fact, mutually reinforcing. In practice, reformist assumptions have led to 'win-win' rhetoric about climate and sustainable energy objectives being compatible with other EU institutions and a stress on the ability for countries to be simultaneously 'green and competitive'.[52] Such arguments stand in open contrast to environmental ideas about limits to growth, referenced above, that initially motivated climate governance.

It is hard to locate in detail the ways in which assumptions about the importance of economic growth have qualified climate benchmarks and how they are formulated – there are, for example, no specific economic growth metrics included and growth is as such not overtly rewarded. It is illustrative here, however, to consider briefly climate governance within the wider EU governance context. Climate targets have been made 'headline goals' of the Europe 2020 strategy, which is fundamentally about delivering growth, understood in terms of recovery from economic crisis. This growth, however, is qualified as needing to be 'smart, sustainable and inclusive'.[53] The qualification of growth as sustainable refers in particular to the move towards a low carbon economy and can been interpreted as part of the mainstreaming of new climate standards into other governance areas – in line with the assumption that growth can be green and with a win-win, reformist agenda.

The resultant position on growth is, however, slightly more complex in that the relationship between economic growth and climate standards as already suggested also works the other way – climate benchmarks actively incorporate an allowance for economic growth. Member states are judged against country emissions targets that are highly differentiated according to economic growth and development but also according to sectors of the economy. In this way benchmarks do recognise some difference between countries in terms of capacity to comply but principally according to metrics of developed or less developed according the GDP *per capita* and/or according to which industries are understood to be important to economic growth and therefore excluded. Countries like Bulgaria and Romania, for example, are benchmarked against targets that allow for them to continue to grow their emissions

[50] Bernstein, *The Compromise of Liberal Environmentalism*, pp. 70–1; A. Jordan, 'The governance of sustainable development: Taking stock and looking forwards', *Environment and Planning C: Government and Policy*, 26 (2008), pp. 17–33.

[51] Bernstein, *The Compromise of Liberal Environmentalism*, p. 53; Giddens, *The Politics of Climate Change*, pp. 193–4.

[52] J. Szarka, 'Climate challenges, ecological modernization, and technical forcing: Policy lessons from a comparative UK-EU Analysis', *Global Environmental Politics*, 12:2 (2012), pp. 87–109.

[53] European Commission, 'Europe 2020: Priorities' (2014), available at: {http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/index_en.htm} accessed 20 April 2015.

on the assumption that meeting tougher climate targets would necessarily involve high costs of implementing energy transitions which they could ill afford.[54] There are examples also of assumptions about the need to allow for growth benefiting developed countries. Some suggest that the choice of 1990 as the year against which GHG emissions reduction targets should be compared was made because it suited certain key counter-parties to the agreement – including Germany and the UK. Certainly, by March 2007 when the UK agreed to the 20-20-20 targets, it had already reduced its emissions heavily as a result of a switch from coal to gas during the 1990s and some de-industrialisation of its economy.[55] Measured in this way the UK meets emissions benchmarking standards and can be counted as a 'best practice' country.

Evidence of the way that commitment to growth has further qualified climate benchmarks can also be seen in the kind of targets agreed for energy efficiency and embedded within climate benchmarking standards. On the surface the commitment to a 20 per cent improvement in energy efficiency by 2020 looks impressive but it is, however, somewhat misleading. Firstly, unlike the other two targets the efficiency target is non-binding for individual countries. Secondly, it is measured not in absolute terms against a certain date, like GHG emissions, but as a reduction in energy consumption of 20 per cent below the *expected* energy consumption trend to 2020 and is, in these ways, a softer target.[56] There are a number of ways in which improving energy efficiency, and/or reduction in demand for energy, are considered to be related to economic growth. Given that growth in demand for energy has historically been considered a natural precondition of wider economic growth energy efficiency can infer, under some measurements, a reduction in growth.[57] For others, efficiency improvements may infer near and medium term costs – DG Ener estimates that the scale of investment required to meet EU 2020 efficiency targets is around €100 billion annually.[58] For many, this raises concerns about affordability and about the effect of these costs have on domestic households but also on companies' abilities to compete internationally. In the longer term, of course, greater energy efficiency is specifically supposed to allow for a decoupling between economic growth and energy demand growth.[59] Furthermore, for countries like the UK that have indigenous fossil fuel industries, there are also positive correlations between energy production, exports, tax receipts, and economic growth. This is one reason why fossil fuel production is still supported publically (often via tax breaks) in many countries. Although many organisations, like the International Energy Agency (IEA), have done much to quantify and discourage these practices, given negative implications for energy transition and for climate mitigation, such state support for fossil fuels is not measured directly by climate benchmarks and therefore is allowed.

Environmental campaigners, and some policymakers, have observed that politics gets in the way of meeting climate benchmarks at the national level as countries pursue growth over climate governance goals. It is observed, for example, that certain countries have in the past shied away from meeting targets or have diluted measures for growth reasons.[60] This suggests that meeting climate mitigation

[54] DG Climate, 'The 2020 Climate and Energy Package' (2014). This is related in turn to the principal of common but differentiated responsibilities and respective capabilities upon which the UNFCCC is based.
[55] Garner, *Environmental Politics*, p. 119.
[56] See DG Climate, 'The 2020 Climate and Energy Package'.
[57] Kuzemko, *The Energy Security-Climate Nexus*, p. 67; Newell and Paterson, *Climate Capitalism*, pp. 13–15.
[58] See DG Ener's webpage, available at: {https://ec.europa.eu/energy/node/1742} accessed 20 April 2015.
[59] Newell and Paterson, *Climate Capitalism*, p. 14.
[60] Compston and Bailey, 'Geography and the politics of climate change'.

objectives is understood in some countries as less important than meeting the objective of economic growth. This might not be a surprising outcome, however, given observations above that individual country climate targets have been specifically constructed with the intention of allowing for economic growth. In essence these choices are evidence of the softer reformist position having become embedded in climate benchmarks, thereby also avoiding and silencing other more radical interpretations of environmental problems and related solutions that recommend less economic growth and consumption.[61]

Climate as 'separate' from environment but as including energy

The second idea embedded in climate benchmarks, and what they measure, is that climate change can be considered as a separate area of governance from environment but as more inter-related with energy as a policy area. Evidence of the split between environment and climate can be seen in decisions to separate out the climate Directorate General (DG Clima) from the environmental DG but also in the design of other climate instruments. For example, by applying GHG emissions as the sole benchmarking standards CDM projects, that have had detrimental environmental impacts in the localities where they have been cited, can still be considered a success when measured from a distance.[62] Environmentally negative outcomes are simply not 'seen' as they are not pertinent to the measured standards but these impacts affect local communities in numerous ways.

For many, however, the most important side-effect of narrowly set climate benchmarks has been that nuclear power can, under such standards, be considered a 'clean' source of energy. It is not just that nuclear power is not seen but that it is considered by the EU to be a positive contribution to mitigating for climate change – contrary to the position taken in countries like Germany and Denmark. Clearly, from an environmental perspective, nuclear energy is potentially the most devastating form of electricity production available currently but it is also highly expensive.[63] The environmental implications of nuclear have become widely recognised during times of radioactive leaks for power plants but unanswered questions of where to store waste post decommissioning remain unanswered and may pose risks for future generations. As will be seen below, countries like the UK that produce nuclear are considered to be pursuing best practice whilst Germany, in its decision to completely phase it out, drop down benchmarks. In this way climate mitigation is, arguably, prioritised over environment.

Less critical attention has, however, been paid to the ways in which climate benchmarks, as separate from environment, then proceed to incorporate various

[61] For references to other claims that global climate governance silences alternative approaches to environment governance. see Bernstein, *The Compromise of Liberal Environmentalism*; B. Richardson, 'The governance of primary commodities: Biofuels certification in the European Union', in A. Payne and N. Phillips (eds), *Handbook of the International Political Economy of Governance* (Cheltenham: Edward Elgar, 2014); T. Wanner, 'The new "passive revolution" of the green economy and growth discourse: Maintaining the "sustainable development" of neoliberal capitalism', *New Political Economy*, 20:1 (2015), pp. 21–41.

[62] See Mathur et al., 'Experiences of host communities with carbon market projects', and Newell and Bumpus, 'The global political ecology of the clean development mechanism' for details of such projects and outcomes.

[63] A. Froggatt, C. Kuzemko, and E. Rouhaud, 'The energy security-climate nexus and the environment', in C. Mitchell, J. Watson, and J. Whiting (eds), *New Challenges in Energy Security: the UK in a Multipolar World* (Basingstoke and New York: Palgrave Macmillan, 2013).

assumptions about energy and its role in climate mitigation. Although the European Commission has separate DGs for energy and for climate change, as part of the creation of the new Energy Union there is now one commissioner for Climate Action and Energy. EU climate documents frame energy as a problem but also claim that renewables and efficiency, as core elements in a sustainable energy system transition, offer the primary route to reducing emissions.[64] What this article argues, however, is that what is not 'seen' here is the protracted and complex politics of driving energy policy, so long associated with fossil fuels, towards achieving climate benchmarks. Meeting even 'reformist' EU climate targets implies for most countries profound changes in energy governance, usage, and systems – albeit not as profound as changes implied within a radical agenda.

There are two aspects of this that are highlighted here. The first is that EU benchmarks, although they do make allowances for growth, tend not to see the *scale* of change required either socially, politically, or even in energy systems.[65] There are multiple separate but interconnected energy systems in place that have a bearing on how countries comply with targets embedded in benchmarks. Take, for example, the introduction of more renewable sources of energy into electricity systems. There are a host of primary and secondary institutions that support electricity systems each with their own implicit power relations, preferred technologies and abilities to influence governance decisions. Introducing more renewable electricity implies billions of euros of new investment just in new transmission systems, given the variability of renewable supply, let alone other parts of the electricity system. There are severe contestations and resistances against this type of change, which countries respond to according to domestic politics.[66]

The second aspect of what is not overtly 'seen' by benchmarks is the highly complex and messy politics of energy that need to be navigated in order to meet set standards. Significant political tensions between the EU and member states on energy policy have been noted elsewhere and although the EU has long worked to establish a unified energy policy there remain significant loopholes that countries can use to avoid compliance.[67] Article 194 of the Lisbon Treaty gives countries the sovereign right to choose, amongst other things, their energy mix.[68] This pits complying with renewable targets against not 'prejudicing' Member State's preferences for an energy mix that reflects their specific national circumstances. What is meant by this, and how it plays out in practice, is covered in more detail below but it is worth noting at this stage that both for the EU and for each member state attempts to meet renewable and efficiency targets relate in practice to attempts to meet other energy objectives.[69] These other energy policy objectives include the need to maintain

[64] DG Climate, 'Progress Towards the 2020 Targets: the European Semester' (2014), available at: {http://ec.europa.eu/clima/policies/g-gas/progress/index_en.htm} accessed 20 April 2015.

[65] For a discussion of the scale of change required, see J. Meadowcroft, 'Engaging with the politics of sustainability transitions', *Environmental Innovation and Societal Transitions*, 1 (2011), pp. 70–5 (pp. 73–4).

[66] See Broome and Quirk, 'Governing the world at a distance', p. 11.

[67] D. Buchan, 'Why Europe's energy and climate policies are coming apart', *Oxford Institute for Energy Studies*, SP 28 (July 2013); C. Kuzemko, 'Ideas, power and change: Explaining EU-Russia energy relations', *Journal of European Public Policy*, 21:1 (2014), pp. 58–75.

[68] European Commission, 'Consolidated version of the treaty on the functioning of the European Union', *Official Journal of the European Union* (30 March 2010).

[69] European Commission, 'A Roadmap for Moving to a Competitive Low Carbon Economy in 2040', Brussels COM(2011) 112/4 Provisional text.

energy security, to establish competitive markets, and sometimes also to address serious energy poverty issues.[70]

In practice, therefore, although the EU and member states do seek to meet climate benchmarks there are other important but differential hierarchies of what is considered politically important, plausible, and possible. Assumptions are built into benchmarks about energy efficiency and renewable energy being solutions to *both* climate change and energy security problems but again this win-win rhetoric masks complex interactions between energy policy objectives in practice.[71] What then also becomes important is the wider context within which climate governance sits and analysis of how governance areas interact with one another, including what priorities are chosen, within processes of compliance with benchmarks.

Member state compliance

One of the puzzles outlined in the introduction to this article is that Germany ranks similarly to, or in some instances much lower than, the UK in climate benchmarks and this section explains in more detail why such rankings seem questionable to many climate scholars (see Table 1 for rankings).

	CPPI 2014	EEA 2013 Efficiency	EEA 2013 Renewables	EEA 2013 Emissions
Germany	19th	Good Progress	Indicative targets met	Mixed Progress
UK	2nd (5th)	Some Progress	Indicative targets not met	Good Progress

Note: Germanwatch's CPPI does not assign positions 1 to 3 to any countries – they consider that no countries are doing enough to prevent dangerous climate change. As such the UK is at position 5 but it comes second relative to all other countries covered.

Table 1. *German and UK Performance in CPPI and EEA benchmarks*

The EEA's latest climate benchmark, in ranking Germany and the UK highly, infers that these are countries whose example should be followed. If these countries are held to be model reformers a critical exploration of the politics of compliance is indeed a useful exercise – especially given that climate mitigation is a relatively untested area of governance where much learning will need to take place. The importance of national compliance has been emphasised elsewhere in that international targets are understood to have little effect on emissions until policies are introduced at the national level.[72] The politics of compliance is also taken here as important as EU member states, often as part of negotiating blocks, have much to say about what should and should not be measured in future based upon national experiences with complying.

Given also that climate targets and benchmarks are intended to set a new direction against which countries can be measured it is worth noting that, even against reformist targets, EU benchmarks do reveal some slippage. Measured compliance with EU GHG emissions reduction targets show that although the aggregate EU emissions reduction target for 2020 is likely to be met, 13 member states may not meet

[70] The EU's formal energy policy objectives are: competition, energy security, and climate mitigation.
[71] Froggatt et al., 'The energy security-climate nexus and the environment'.
[72] N. Carter, 'Climate change and the politics of the global environment', in M. Beeson and N. Bisley (eds), *Issues in Twenty-first Century World Politics* (Basingstoke and New York: Palgrave Macmillan, 2010), p. 57; Compston and Bailey, 'Comparing Climate Policies', p. 3.

their individual emissions targets.[73] In this way the performance of some countries subsidises other non-performers. Aggregate EU and individual member state compliance with renewable energy targets is yet more mixed, and even worse is energy efficiency compliance, albeit efficiency targets are non-binding.[74] Failure to meet these 'weak' targets may have significance given the EU's 'leadership' position in climate negotiations and commitment to climate mitigation.

German compliance: the 'Green' reformer

EEA climate benchmarks tell us that Germany, on the latest measurable data, is making good progress towards meeting EU targets – especially with regard to renewable energy.[75] It has for some time been qualified as one of the best EU countries in compliance terms – although it has slipped recently on emissions measurements for reasons to be explained below.[76] As already suggested, however, what is not seen by benchmarks is the amount of work, in terms of policies and institution building, that has already gone into meeting these targets. Germany, unlike most other countries in the world including the UK, is already in 'phase II', the Energiewende, of its energy transition.[77] The Energiewende is specifically designed to facilitate a sustainable transition by 2050: it contains a GHG emissions reduction target of 80 to 95 per cent and a reduction in primary energy use of 50 per cent. These targets are notable in that they are both measured against 2008 rather than the 'easier' date of 1990 and therefore infer a high degree of change. It also includes one of the most ambitious renewable energy targets of 60 per cent of final consumption.[78] What this shows is long-term commitment above and beyond EU benchmarks – something that is neither seen nor rewarded because benchmarks only measure against EU agreed targets and as such only recognise, on an annual basis, success in meeting these. Ambitious climate targets can be understood as part of the broader German history of having tougher environmental targets than the EU.[79]

What compliance emphasises is that having targets is really only a starting point and that learning how to meet them is the important part. Here Germany is widely held up, in more qualitative climate analyses, as a clear leader. For example, Germany's feed-in-tariff (FiT), the principal support mechanism for renewable energy, has been highly successful, not least in that it has offered a risk-free return for new renewable production. Germany has also supported renewable production by ruling that transmission systems must give priority access to renewables over other sources of electricity.[80] These conditions have made it possible for a high degree of

[73] DG Climate, 'Progress Towards the 2020 Targets: the European Semester' (2014), available at: {http://ec.europa.eu/clima/policies/g-gas/progress/index_en.htm} accessed 20 April 2015; European Environment Agency, 'Trends and Projections in Europe'.
[74] European Environment Agency, 'Trends and Projections in Europe', p. 124.
[75] Ibid., various pages.
[76] Ibid., p. 111.
[77] Phase one being the 'Energy Concept' and Renewable Energy Act of 2000, see G. Fuchs, N. Hinderer, G. Kungl, and M. Neukirch, 'Adaptive Capacities, Path Creation and Variants of Sectoral Change: the Case of the Transformation of the German Energy Supply System', SOI Discussion Paper 2012-02 (2012), p. 19.
[78] Agora Energiewende, '12 Insights on Germany's Energiewende', Agora Energiewende Discussion Paper 010/03-1-2013/EN (2013), p. 1.
[79] V. Schmidt, *Democracy in Europe* (Oxford: Oxford University Press, 2006), p. 145.
[80] D. Jacobs, 'The German Energiewende: History, targets, policies and challenges', *Renewable Energy Law and Policy*, 3:4 (2012), pp. 223–34.

small-scale but also widely distributed production to be developed in Germany approximating more closely the environmental ideal of community and/or local energy production. Although benchmarks show that Germany is meeting its renewable targets this more sustainable aspect of how renewable energy is produced is neither measured nor rewarded by EU climate benchmarks. Ability to comply here is also important in that Germany is a now strong supporter of extending binding renewable energy targets at the EU integrated and member country level to 2030 and 2050.[81]

In attempting to explain why Germany has been more successful in supporting renewable energy comparative analyses suggest that as a 'co-ordinated market economy' Germany has already had in place the kinds of institutions that allow for and support this kind of long run but difficult and constantly renegotiated change.[82] Not only has there been considerable public investment in research and development of new systems they have also had better coordinated processes for deliberation and negotiation in support of new, but sometimes contentious, policies. This is partly also because Germany has recognised the need for specific institutions to enable a sustainable transition. The well-capitalised German development bank, the KfW, has been directed to lend to sustainability projects at very low interest rates and then reinvest proceeds back into more sustainability projects.[83] Furthermore Germany has a more deeply embedded municipal movement that has supported the many local energy projects that have developed across Germany, albeit more specific to some Länder than others. Some also argue that the costs of energy transition are more fairly distributed to the extent that those that are impacted are better supported by the German welfare system with positive implications for energy poverty.[84] This has all been further underpinned by the fact that all political parties, as well as large sections of the German electorate, support climate change mitigation, energy system transition, as well as other environmental issues.[85]

Beyond this institutional terrain a close analysis of the politics of compliance reveals deep complications. This is where we pick up again on some of the qualifications to climate benchmarks outlined above. One assumption built into climate benchmarks is that climate targets are *the* drivers for cleaner energy policy and systems. Historically, however, improvements in energy sustainability have been a means of responding not to climate but to energy security fears. It has also been suggested that much of what has been achieved in Germany, and other countries like Sweden, has been related to their lack of indigenous energy supply and the fact that they have historically been heavy fossil fuel importers. The argument runs that the initial impetus for some measures was to reduce dependence, and thereby increase supply security, in response to crises such as the 1970s oil shocks.[86] In not recognising

[81] See D. Buchan and M. Keay, 'The EU's Energy and Climate Goals for 2030: Under-Ambitious and Over-Bearing', Oxford Energy Comment (January 2014).

[82] Mikler and Harrison, 'Varieties of capitalism and technological innovation'; M. Lockwood, C. Kuzemko, C. Mitchell, and R. Hoggett, 'Theorising Governance and Innovation in Sustainable Energy Transitions', EPG Working Paper No. 1304 (2013), available at: {http://projects.exeter.ac.uk/igov/working-paper-theorising-governance-and-innovation-in-sustainable-energy-transitions/} accessed 20 April 2015.

[83] For an assessment of the KfW Bank's role in facilitating system change, see M. Schröder, P. Ekins, A. Power, M. Zulauf, and R. Lowe, 'The KfW Experience in the Reduction of Energy Use in and CO2 Emissions From Buildings: Operation, Impacts and Lessons for the UK', UCL Working Paper (November 2011).

[84] M. Lockwood, 'The Political Dynamics of Green Transformations', Exeter Energy Policy Group Working Paper No. 1404 (April 2014).

[85] Giddens, *The Politics of Climate Change*, p. 76.

[86] Ibid., p. 37.

different drivers for change climate benchmarks see only a small portion of relevant decision-making around energy policy.

A second embedded assumption that has an impact on how Germany is judged is that climate can be separated from environment. There has been a long-standing debate in Germany about nuclear power – in the early 2000s it was agreed that nuclear power, despite environmental objections, could act as a short-term, low carbon bridge to a future where energy consumption would be lower and renewables the primary source.[87] In 2011, it was decided that nuclear would be phased out by 2022 – a controversial as well as momentous decision that reflects a more environmentally informed standpoint on energy production.[88] Nuclear power in 2011, however, still accounted for 17.7 per cent of Germany's electricity supply and this has therefore inferred profound short and medium term changes to energy policy and systems – not least in that its options for electricity production have narrowed. In the short-term, to accommodate for nuclear power shortfalls, Germany has been producing more electricity from coal and for this reason fell foul of emissions measurements.[89] By extension, however, this also places the need to develop renewable energy quickly absolutely central within German climate and energy policy and infers economic and political costs – the ramifications of which are currently very high profile. EU climate benchmarks, because they do not measure environmental impacts, only see the withdrawal from nuclear as negative decision in that it has implications for near-term emissions. The EU, for its part, is critical of Germany's stance on nuclear and the degree to which Germany subsidises renewable energy production.[90] In this benchmarks are both near-sighted, in that they do not account for longer-term commitments, but also because in only recognising emissions, but not other environmental impacts of energy, they allow and even reward potentially damaging practices thereby storing up future problems. This shows the impact, in practice, of prioritising climate over environment in this way.

Despite Germany's position as one of the most progressive in terms of action to mitigate for climate change there has always been deep seated opposition but the German Parliament's resolution in addressing this is not rewarded. The 'Big 4' gas and electricity companies, the coal sector, and some heavy industry companies have mounted, and continue to mount, sustained attacks on green energy policy decisions.[91] As a mark of German parliamentary commitment to sustainable transition and renewables, MPs have actively defended renewable policies against the 'Big4'.[92]

Those that oppose the Energiewende today use the economic costs associated with rapid energy transition to argue against further support. Opponents of renewables place the blame for high-energy prices in Germany on the cost of support mechanisms which are passed on to customers.[93] One report argues that Germany has lost €15 billion annually in trade due to premium energy prices

[87] D. Buchan, 'The Energiewende – Germany's gamble', *Oxford Institute for Energy Studies*, SP 26 (June 2012), p. 3; Fuchs et al., 'Adaptive Capacities, Path Creation and Variants of Sectoral Change', p. 19.
[88] As does the decision to limit bio-energy to less than 10 per cent of power generation in the long term. See Agora, '12 Insights on Germany's Energiewende', p. 5.
[89] European Environment Agency, 'Trends and Projections in Europe'.
[90] Buchan, 'Why Europe's energy and climate policies are coming apart', p. 2.
[91] Fuchs et al., 'Adaptive Capacities, Path Creation and Variants of Sectoral Change', p. 21.
[92] S. Jacobsson and V. Lauber, 'The politics and policy of energy system transformation – explaining the German diffusion of renewable energy technology', *Energy Policy*, 24 (2006), pp. 256–76 (pp. 265–6).
[93] Fuchs et al., 'Adaptive Capacities, Path Creation and Variants of Sectoral Change', p. 19.

faced by industry.[94] This is despite the fact that, in terms of heavy industry, concessions have been made.[95] The economic costs of transition, as well as other system costs are not passed on to car, chemicals, and steel industries in the same way as they are to other, especially residential, electricity consumers.[96] In these ways we see some relative priorities come to light: energy transition is not prioritised over heavy industry, historically such a large part of German GDP, on the grounds of economic growth and international competitiveness arguments. Allowing for growth in this way is, however, in line with assumptions about sustainability that are built into benchmarks and as such countries are free to follow this path.

What this shows is that even pursuing a reformist climate agenda in a relatively well committed country is, in practice, highly political as well as significant for other governance areas. The future of the Energiewende at the moment appears viable, but new opposition has started to mount as economic costs, as currently distributed, impact upon domestic over industrial users. Most recent changes have been to pull back on the generous FiT system – although priority access for renewables remains in place – partly also in response to EU pressures to reduce state support levels. Their future ability to meet emissions targets will hang on how successful they are in balancing nuclear phase out with renewable development and demand reduction. In this they are facing unprecedented but deeply difficult decisions – their experiences may provide useful learning for countries that are considering a similar route. According to climate benchmarks, all this commitment of political capital in the face of opposition is simply not relevant thereby making energy system transition in pursuit of climate mitigation appear technical and straightforward.

UK compliance: Reluctant reformer meets status quo

As we have seen, the UK is assigned a position in official EEA benchmarks similar to Germany and, as such, it is also often held up as a leader in acting to mitigate for climate change. In assigning the UK a position well ahead of Germany the CCPI index suggests that it is much better at climate mitigation. By contrast, however, and as already suggested in the introduction to this article, comparative analyses of climate governance are more critical of the UK's approach to climate mitigation. EU climate benchmarks arguably see even less of the politics of UK compliance, in particular the internal contestations even of reformist EU targets. For example, although the UK has historically performed well against emissions reduction targets it is argued that these achievements have mainly been based on the large-scale switch from coal to gas that took place in the 1990s as well as on the recession that started in 2008, but less on proactive policymaking.[97] In fact, estimated figures for 2012 show a rise in UK GHG emissions due to a switch back to coal driven by the relatively low coal versus gas prices but benchmarks, given the time lag, only see such deterioration years later.[98] In addition not only is UK's 2020 renewable energy target of 15 per cent lower than Germany's 18 per cent it is also, at 5.6 per cent in 2013, still a long way off

[94] J. Vasagar, 'Germany Told of Billions Lost to Trade Due to Energy Policy', *Financial Times* (26 February 2014).
[95] Giddens, *The Politics of Climate Change*, p. 195.
[96] Buchan, 'Why Europe's energy and climate policies are coming apart', p. 4.
[97] D. Helm, *Energy, the State and the Market: British Energy Policy Since 1979* (Oxford: Oxford University Press, 2003).
[98] European Environment Agency, 'Trends and Projections in Europe', p. 33

reaching it.[99] Climate benchmarks in this way reward the UK for lowering emissions and making progress towards renewable targets but fail to make any relative judgement in favour of Germany's progress in meeting tougher renewable targets than the UK.

Another reason for the relative favouring of the UK within EU benchmarks, as currently constructed, might be that the UK's orientation toward target setting is more in line with the EU. The Labour government, under Gordon Brown, adopted a legally binding emissions reduction target of 80 per cent by 2050 as part of the Climate Change Act and this has been held up as best practice. Although it should be noted that the 80 per cent figure is measured against 1990 levels and is therefore not a commitment comparable to that being made by Germany. In order to meet these objectives new institutions have recently been established, such as the Department for Energy and Climate Change (DECC) and the Green Bank and a plethora of new white papers, strategies, bills, and acts of parliament has also ensued. Broadly speaking, however, the UK is still in phase one of a weak reformist programme on climate mitigation. A return to climate and energy policy literatures suggests that the UK's new climate targets and recent governance changes have been less successful at driving actual changes in the energy system.[100] This infers that target setting and energy system change do not necessarily go hand in hand but also that there should be greater questions posed about the UK's status as 'best practice' in climate mitigation.

One prominent explanation given for relatively disappointing energy system change has been that the UK has placed a comparatively greater regulatory and policy emphasis on other energy policy goals, such as liberalising and privatising markets, and on the role of markets in delivering sustainable transition and energy services more broadly.[101] In the 1990s as privatisation progressed responsibility for energy was passed to private enterprise and the UK closed energy departments down thereby arguably limiting civil service and wider government energy sector knowledge. Privatisation for some has also fostered an oligopoly of private gas and electricity companies, the 'Big 6', which have been reluctant to change and which have had a high degree of influence over policy and regulation.[102]

This relative stance versus stated political intentions to transition to a sustainable energy system stands in strict contrast to German parliamentary standing down of large utilities. One example of corporate influence over UK policymaking has been the recent government decision to pull back on energy efficiency obligations that had been placed on energy companies in response to popular sensitivity to rising prices. This was a consummate piece of deflection by the Big 6 given that, at the time, many market and political commentators were pointing the finger at energy corporates as culpable for the price increases not climate policies. The fact that the UK government gave way so easily on efficiency policy prioritises suggests that powerful industries and popular opinion about the price of energy are considered more important than climate mitigation.

[99] Department of Energy & Climate Change, 'Renewable sources of energy: Chapter 6, Digest of United Kingdom Energy Statistics (DUKES)' (London: DECC, 2015).

[100] See C. Mitchell, *The Political Economy of Sustainable Energy* (Basingstoke and New York: Palgrave Macmillan, 2008) for an in-depth analysis of UK sustainable energy policy and disappointing changes in actual practices in the energy system.

[101] See, for example, Mitchell, *The Political Economy of Sustainable Energy*; Giddens, *The Politics of Climate Change*; see also various chapters in I. Scrase and G. MacKerron (eds), *Energy for the Future: A New Agenda* (Basingstoke and New York: Palgrave Macmillan, 2009).

[102] Lockwood et al., 'Theorising Governance and Innovation in Sustainable Energy Transitions'.

This analysis of the politics of UK compliance highlights, again, the importance of notions of energy security as drivers for change but also as capable of influencing choices between low carbon forms of energy. For a period, mainly in the 1990s, the UK was not only able to cover its domestic needs for oil and gas but was also able to export fossil fuels and this reduced its exposure to security of supply issues. It wasn't until the mid 2000s, when becoming a fossil fuel importer again coincided with other international energy events, that the UK became highly aware of such concerns and made energy security, alongside climate change, a priority energy policy objective. The resulting political emphasis on 'home-grown' energy, as capable of improving security, has been utilised by the nuclear industry to push for government support for new UK nuclear power stations. Contrary to observations about the UK's commitment to markets, the Conservative-Liberal Democrat Government have agreed to long-term, fixed prices, at double the market rate, for nuclear electricity.[103] This suggests a prioritising of energy security and nuclear over renewables given that new nuclear will provide for the low carbon element that would otherwise have had to come from renewables. EU benchmarks not only allow for nuclear, given its low carbon credentials, but do not see the ways in which commitment to nuclear can reduce commitment to renewables.

When considering a country's ability to comply existing energy systems and infrastructures are also important.[104] The UK's historic ability to earn export revenues from fossil fuel exports, embedded infrastructures and associated sunk costs impact upon existing power relations in energy and give succour to arguments against energy transition. The UK, furthermore, supports the domestic fossil fuel industry with billions of pounds of subsidies and tax breaks.[105] There has been a recent decision to design the most generous taxation system on offer for shale gas to facilitate indigenous exploration and development as well as to establish a new Oil and Gas Agency to facilitate maximum possible extraction of oil and gas in the UK.[106] These are all directly framed not only as being necessary in order to secure energy security but also to secure economic growth, or more precisely recovery. Such investment in fossil fuels to support economic growth is allowable under current constructions of EU benchmarks and standards as well as in line with the UK's own definitions of sustainability.[107] As such, decisions affecting compliance with climate targets are not just about an over-reliance on markets but also about inter-actions between energy policy objectives of emissions reduction, supply security and the objective of economic growth. Although the European Commission has had much to say about UK nuclear subsidies,[108] the EEA's benchmarks do not mark the UK down for actively supporting fossil fuel expansion that is detrimental to climate change mitigation.

[103] See the Gov.UK website, 'Initial Agreement Reached on New Nuclear Power Station at Hinkley', Press Release (21 October 2013), available at: {https://www.gov.uk/government/news/initial-agreement-reached-on-new-nuclear-power-station-at-hinkley}.

[104] See G. Unruh, 'Understanding carbon lock-in', *Energy Policy*, 28 (2000), pp. 817–30 for a discussion of carbon path-dependencies or 'lock-in'.

[105] House of Commons Environmental Committee, *Energy Subsidies: HC61* (London: the Stationary Office 2013), p. 3. The UK is, however, uncertain in reality about how much it spends on subsidising energy including nuclear, fossil fuels, and renewables – or even how this should be measured. The investigation into subsidies is still ongoing.

[106] BBC News, 'Aberdeen to be Home for New Oil and Gas Agency', available at: {http://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-27809836} accessed 20 April 2015.

[107] Kuzemko, *The Energy Security-Climate Nexus*, p. 98.

[108] P. Johnstone, 'European Commission Critique of UK Nuclear Strategy', *Sussex Energy Group Blog* (11 February 2014), available at: {http://sussexnrggrp.wordpress.com/2014/02/11/the-potential-for-a-hinkley-shaped-hole-in-uk-energy-infrastructure/} accessed 20 April 2015.

This support is simply not seen and, in this way, questions benchmarks in both efficacy and credibility terms.

In terms of choices regarding energy mix, that is what sources should be prioritised, this is far from a coherent transition agenda. By contrast by rejecting nuclear and emphasising renewables Germany has made choices about technology pathways and this is important in that it then allows other decisions to be made about what associated energy system changes will be needed. The UK has not made firm decisions about energy sources in that everything is still on the table but it also does not have any renewable energy targets beyond EU 2020, certainly not binding ones. By not choosing variable renewable over steady-state, coal, gas and nuclear, electricity supply the UK has to maintain transmission and distribution systems that cater to both – arguably a more expensive option in the long run. This lack of commitment to renewable energy has underpinned recent attempts to convince the European Commission that no binding renewable targets should be placed on member states as part of the 2030 framework thereby seeking to alter the metrics against which climate benchmarks measure compliance. In these ways, although the UK is judged as similar to or better than Germany, it should be described as more *status quo* even than reformist at the moment and should not, perhaps, be held up as a model of climate mitigation performance.

Conclusion

This analysis has, by adopting a constructivist IPE approach, been able to reveal the many ways in which climate benchmarks, as currently constructed, have implications for which countries are held up as leaders, how compliance is undertaken, as well as complex inter-linkages with other policy areas. By narrowing down what is measured to numbers reflecting certain, soft targets Germany becomes, in one benchmark, less of a model climate reformer than the UK – encouraging other countries to follow UK practices. This is problematic to the extent that other, more qualitative, analyses claim that UK climate and energy governance is in many respects less effective than Germany's. There are issues here of temporality, to the extent that each benchmark assessment exercise focuses only on one year, and of scale of ambition, in that targets accepted tend to delineate the boundaries of climate ambition expected of each country – we will return to these issues below. Largely this is a case of benchmarks reflecting an acceptance of what is held to be achievable based on today's politico-economic models while glossing over more thorny but none-the-less equally important issues for climate mitigation and sidelining radical alternatives. This is not so surprising given that, once recognised as a global issue that must be addressed, it has fallen to pre-existing international institutions to take action but may not bode well for long-term climate mitigation.

The approach taken here has departed from some constructivist IPE approaches to the extent that climate governance and benchmarks have been conceptualised as informed simultaneously by multiple, varied ideas. In particular there has been an emphasis on revealing the internal contradictions that occur between intentions to drive sustainable behaviour change and those behaviours benchmarks actively reward and those that they ignore. A number of specific issues have been highlighted – one is that climate benchmarks infer an active but sadly limited inter-relationship between policy areas. The only explicitly recognised link between policy areas is that between

energy and climate policy but the way in which energy is included in climate benchmarks ignores other aspects of energy policy that are equally important to the success of climate mitigation strategies. Countries are understood to be following best practice if they successfully pursue sustainable energy policies but they are not directly discouraged from supporting fossil fuels given that such energy policies are simply not seen. Some links between climate and other policy areas are broken, for instance with environmental policy allowing for climate choices that are in effect environmentally damaging, whilst other links are simply inferred such as those between economic growth objectives and meeting climate targets.

A second point of departure from climate governance literatures has been to consider compliance in two developed countries in order to make explicit how different domestic and institutional contexts inter-react with international standards and influence different compliance paths. This analysis has revealed nuanced differences in German and UK climate governance – not least Germany's greater commitment to long-term energy system transition as opposed to the UK's tendency to attempt to comply rather than lead but also to question even existing, soft targets. Indeed reifying economic growth benchmarks in essence allows countries, like the UK, to object to climate mitigation agendas on precisely those grounds. For example there has been heavy objection from the UK over renewable energy's place within EU 2030 targets as well as over the inclusion of efficiency targets.[109] By conceptualising EU climate governance as fluid and as involving two-way relationships with member states we can therefore understand that current benchmarking constructions, and the contestations they engender and allow, become part of their future construction.

For those from a radical environmental standpoint missed targets and disagreement over the near-term future might be all too predictable but that still leaves the international community with the ever more desperate need to meet the 2°C limit and to further institutionalise behavioural change. The suggestion here is to more overtly recognise precise ways, outlined above, in which benchmarks are currently limited in their ability to recognise effective climate mitigation strategies. Once such limits are made more overt there could be two basic options for proceeding: one would be to take benchmarks with a large pinch of salt and not use them to quantify 'best practice' but this would necessitate greater structural reforms given their central role in measuring compliance with binding EU targets. In the absence of such reforms the second option would be to improve their construction. Benchmarks might, for example, be altered to include *new* standards against which each country's climate performance can be measured, not least standards that can reflect how fossil fuel production and use is developing in each country. New standards that measure the degree to which countries are managing to decouple economic growth from energy demand growth, and or measure each country's longer-term progress and future commitment to climate mitigation might also be considered. These suggestions are based on the analysis undertaken here, but should by no means be taken as a complete list.

Devising these would require further knowledge building about the complex detail of how benchmarks are constructed and how different nations interpret and comply with climate benchmarks in practice. From a theoretical viewpoint taking an approach that better reveals embedded ideas and interrogates how they relate to

[109] See O. Geden and S. Fischer, 'Moving Targets: Negotiations on the EU's Energy and Climate Policy Objectives for the Post-2020 Period and Implications for the German Energy Transition', SWP Research Paper, RP3 (March 2014).

policy constructions has arguably allowed for a more honest and realistic assessment of climate governance. More such analysis might be useful in further revealing complex constructions of climate governance and varieties of compliance and make more overt what political choices are being made and the hierarchies between economic, energy, environmental, and climate objectives these choices infer. Such knowledge, if it were to be made more readily available, would allow voting publics to know more about what compromises governments are making (and need to make) in their name. All these observations imply that what is needed here is a reflexive political learning process, instead of assuming that answers are already known and can be technically measured, especially given the unprecedented nature of governing for climate mitigation and complex system transition.